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(54) Title: A RETRO-INVERSO GONADOTROPIN-RELEASING HORMONE PEPTIDE AND VACCINE COMPOSITION

(57) Abstract: The invention describes a retro-inverso (RI) gonadotropin-releasing hormone (GnRH) peptide which is capable of eliciting an immune response directed against GnRH, the peptide having the amino acid sequence GPRLGYSWHX, wherein the amino acids are D-amino acids and X is any amino acid. More particularly, X is E, Q, P or G, and even more particularly, X is E or Q. Thus, a preferred amino acid sequence for the peptide is GPRLGYSWHE. The peptide may optionally include one or more additional D-amino acids at its N- or C-terminus, for example a cysteine residue or a series of linker amino acids, such as a plurality of glycine amino acid residues. Thus, a second preferred amino acid sequence for the peptide is GPRLGYSWHEC, which includes a cysteine residue at the C-terminus for conjugation purposes. The invention also describes a vaccine composition for use in controlling fertility, heat, contraception and/or treating sex hormone-related diseases, and a method for controlling and or treating fertility and sex hormone-related diseases.

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IB 03/05008

A. CLASSIFICATION OF SUBJECT MATTER					
IPC 7	C07K7/23	C07K19/00	A61K38/09	A61P5/02	A61P15/00
	A61P35/00	C07K7/06			

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, CHEM ABS Data, SEQUENCE SEARCH

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHATURVEDI N. ET AL.,: "topochemically related homone structures" INT.J.PEPTIDE PROTEIN RES., vol. 17, 1981, pages 72-88, XP009031705 see whole doc. esp. p.73, 1.col., 2 .par., ---	1-29
X	WO 92/12247 A (PROTEUS MOLECULAR DESIGN) 23 July 1992 (1992-07-23) see whole doc. esp. p.8, 1.20 ff. and claims ---	1-29 -/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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- \*&\* document member of the same patent family

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**INTERNATIONAL SEARCH REPORT**International Application No  
PCT/IB 03/05008**C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BEEKMAN N.J.C.M. ET AL., : "highly immunogenic and fully synthetic peptide-carrier constructs targetting GnRH" VACCINE , vol. 17, - 1999 pages 2043-2050, XP002282907 cited in the application the whole document -----	1-29
A	MILLER L.A. ET AL., : "immunocontraception of white-tailed deer with gnRH vaccine" AM. J. REPRODUCTIVE IMMUNOLOGY, vol. 44, November 2000 (2000-11), pages 266-274, XP009031699 the whole document -----	1-29

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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